AMENDMENTS IN THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims

1. (Previously presented) A method of measuring an amount of an organic substance contained within a food product, said organic substance having an infrared absorption spectrum which includes a set (n) of wavelength regions, wherein each of said wavelength regions substantially correspond to an absorption band of said absorption spectrum, comprising:

(a) detecting the intensity of a number of selected wavelength bands of infrared electromagnetic radiation influenced by said organic substance contained within said food product with a detection system, wherein (i) each of said selected wavelength bands substantially corresponds to one of said wavelength regions and (ii) said number of said selected wavelength bands is equal to n-1 or less;

(b) generating an electrical signal in response to detecting the intensity of said number of said selected wavelength bands;

(c) receiving said electrical signal with a signal processor configured to process said electrical signal with a quantification algorithm; and

(d) processing said electrical signal with said quantification algorithm so as to provide a measurement of said amount of said organic substance contained within said food product.

2. (Previously presented) The method of claim 1, wherein:

said quantification algorithm of (c) includes dividing a first wavelength band integrated absorbance value by a reference wavelength band integrated absorbance value.

3. (Previously presented) The method of claim 1, wherein:

(a) includes detecting the intensity of (i) about a 905 - 930 cm^{-1} wavelength band of infrared electromagnetic radiation and (ii) about a 880 - 890 cm^{-1} wavelength band of infrared electromagnetic radiation.

4. (Previously presented) The method of claim 1, wherein:

(a) includes detecting the intensity of (i) about a 2905 - 2945 cm^{-1} wavelength band of infrared electromagnetic radiation and (ii) about a 2840 - 2870 cm^{-1} wavelength band of infrared electromagnetic radiation.

5. (Previously presented) The method of claim 1, wherein:

said number of selected wavelength bands of (a) are within a range defined by 800 - 1000 cm^{-1}.

6. (Previously presented) The method of claim 1, wherein:

said number of selected wavelength bands of (a) are within a range defined by 2800 - 3000 cm^{-1}.

7. (Previously presented) A method of measuring an amount of a vegetable seed oil in a food product, wherein said vegetable seed oil has an infrared absorption spectrum which includes a set (n) of infrared wavelength regions, wherein each of said infrared wavelength regions substantially correspond to an infrared absorption band of said infrared absorption spectrum, comprising:

(a) detecting the transmittance of a number of selected wavelength bands of infrared electromagnetic radiation absorbed by said vegetable seed oil contained within said food product with a detection system, wherein (i) each of said selected wavelength bands substantially corresponds to one of said wavelength regions and (ii) said number of said selected wavelength bands is equal to n-1 or less;

(b) generating an electrical signal in response to detecting the transmittance of said infrared electromagnetic radiation;

(c) receiving said electrical signal with a signal processor configured to process said electrical signal with a quantification algorithm; and

(d) processing said electrical signal with said quantification algorithm so as to provide a measurement of said amount of said vegetable seed oil contained within said food product.

8. (Previously presented) The method of claim 7, wherein:

said quantification algorithm of (c) includes dividing a first wavelength band integrated absorbance value by a reference wavelength band integrated absorbance value.

9. (Previously presented) The method of claim 7, wherein:

(a) includes detecting the transmittance of (i) about a 905 - 930 cm^{-1} wavelength band of infrared electromagnetic radiation and (ii) about a 880 - 890 cm^{-1} wavelength band of infrared electromagnetic radiation.

10. (Previously presented) The method of claim 7, wherein:

said number of selected infrared wavelength bands of (a) are within a range defined by 800 - 1000 cm^{-1}.

11. (Previously presented) The method of claim 7, wherein:

said food product includes olive oil.

12. (Previously presented) A method of measuring an amount of milk fat in a food product, wherein said milk fat has an infrared absorption spectrum which includes a set (n) of infrared wavelength regions, wherein each of said infrared wavelength regions substantially correspond to an infrared absorption band of said infrared absorption spectrum, comprising:

(a) detecting the transmittance of a number of selected wavelength bands of infrared electromagnetic radiation absorbed by said milk fat contained within said food product with a detection system, wherein (i) each of said selected wavelength bands substantially corresponds to one of said wavelength regions and (ii) said number of said selected wavelength bands is equal to n-1 or less;

(b) generating an electrical signal in response to detecting the transmittance of said infrared electromagnetic radiation;

(c) receiving said electrical signal with a signal processor configured to process said electrical signal with a quantification algorithm; and

(d) processing said electrical signal with said quantification algorithm so as to provide a measurement of said amount of said milk fat contained within said food product.

13. (Previously presented) The method of claim 12, wherein:

(a) includes detecting the transmittance of (i) about a 2905 - 2945 cm^{-1} wavelength band of infrared electromagnetic radiation.

14. (Previously presented) The method of claim 12, wherein:

(a) includes detecting the transmittance of (i) about a 2840 - 2870 cm^{-1} wavelength band of infrared electromagnetic radiation.

15. (Previously presented) The method of claim 12, wherein:

said number of selected infrared wavelength bands of (a) are within a range defined by 2800 - 3000 cm^{-1}.

16. (Previously presented) The method of claim 12, wherein:

said food product includes milk.

17. (Previously presented) A method of measuring a concentration of an organic substance contained within a food product, said organic substance having an infrared absorption spectrum which includes a set (n) of infrared wavelength regions, wherein each

of said infrared wavelength regions substantially correspond to an infrared absorption band of said infrared absorption spectrum, comprising:

(a) detecting the transmittance of a number of selected wavelength bands of infrared electromagnetic radiation absorbed by said organic substance contained within said food product with a detection system, wherein (i) each of said selected wavelength bands substantially corresponds to one of said wavelength regions and (ii) said number of said selected wavelength bands is equal to n-1 or less;

(b) generating an electrical signal in response to detecting the transmittance of said selected infrared electromagnetic radiation wavelength bands;

(c) receiving said electrical signal with a signal processor configured to process said electrical signal with a mathematical model; and

(d) processing said electrical signal with said mathematical model so as to provide a measurement of the concentration of said organic substance contained within said food product.

18. (Previously presented) The method of claim 17, wherein:

(a) includes detecting the transmittance of said selected electromagnetic radiation wavelength bands absorbed by a vegetable seed oil contained within said food product with said detection system.

19. (Previously presented) The method of claim 17, wherein:

(a) includes detecting the transmittance of said selected electromagnetic radiation wavelength bands absorbed by milk fat contained within said food product with said detection system.

20. (Previously presented) The method of claim 17, wherein:

said mathematical of (c) includes dividing a first wavelength band integrated absorbance value by a reference wavelength band integrated absorbance value.

21. (Previously presented) The method of claim 17, wherein:

said mathematical model includes the mathematical equation

$C_f = P_0 + P_1 IA_{\lambda,1}$

where (i) C_f is a mean-centered known concentration of milk fat in a food product, (ii) P_i are calibration constants, and (iii) $IA_{\lambda,1}$ is a mean-centered integrated absorbance occurring in a selected wavelength band.

22. (Currently amended) A method of measuring an amount of an organic substance contained within a food product, said organic substance having an infrared

absorption spectrum which includes a set (n) of wavelength regions, wherein each of said wavelength regions substantially correspond to an absorption band of said absorption spectrum, comprising:

(a) illuminating said food product with infrared electromagnetic radiation, wherein said infrared electromagnetic radiation includes one or more wavelength bands of said infrared electromagnetic radiation which are absorbed by said organic substance contained within said food product;

(b) selecting a number of said wavelength bands of said infrared electromagnetic radiation, wherein (i) each of said selected wavelength bands substantially corresponds to one of said wavelength regions and (ii) said number of said selected wavelength bands is a subset of (n);

(c) detecting the intensity of only (i) said subset of said selected wavelength bands absorbed by said organic substance contained within said food product with a detection system and (ii) said number of reference wavelength bands;

(d) generating one or more electrical signals in response to detecting the intensity of only said subset of said selected wavelength bands;

(e) receiving said one or more electrical signals with a signal processor configured to process said electrical signals with a quantification algorithm; and

(f) processing said one or more electrical signals with said quantification algorithm so as to provide a measurement of said amount of said organic substance contained within said food product.

23. (Previously presented) A method of measuring an amount of an organic substance contained within a food product, said organic substance having an infrared absorption spectrum which includes a set (n) of wavelength regions, wherein each of said wavelength regions substantially correspond to an absorption band of said absorption spectrum, comprising:

(a) illuminating said food product with infrared electromagnetic radiation;

(b) detecting the intensity of said infrared electromagnetic radiation that is absorbed by said organic substance contained within said food product, wherein (i) said intensity detection is restricted to a number of selected wavelength bands of infrared electromagnetic radiation, (ii) each of said selected wavelength bands substantially corresponds to one of said wavelength regions, and (iii) said number of said selected wavelength bands is a subset of (n);

(c) generating an electrical signal in response to detecting the intensity of said subset of said selected wavelength bands;

(d) receiving said electrical signal with a signal processor configured to process said electrical signal with a quantification algorithm; and

(e) processing said electrical signal with said quantification algorithm so as to provide a measurement of said amount of said organic substance contained within said food product.

24. (Previously presented) The method of claim 23, further comprising:

(f) detecting the intensity of one or more reference wavelengths bands of said infrared electromagnetic radiation which are not substantially absorbed by said organic substance contained within said food product,

wherein (c) includes generating said electrical signal in response to detecting the intensity of said one or more reference wavelength bands.

25. (Currently amended) A method of measuring an amount of an organic substance contained within a food product, said organic substance having an infrared absorption spectrum which includes a set (n) of wavelength regions, wherein each of said wavelength regions substantially correspond to an absorption band of said absorption spectrum, comprising:

(a) illuminating said food product with infrared electromagnetic radiation, wherein said infrared electromagnetic radiation includes one or more wavelength bands of said infrared electromagnetic radiation which are absorbed by said organic substance contained within said food product;

(b) selecting a number of said wavelength bands of said infrared electromagnetic radiation, wherein (i) each of said selected wavelength bands substantially corresponds to one of said wavelength regions and (ii) said number of said selected wavelength bands is a subset of (n);

(c) detecting with a detection system the intensity of said infrared electromagnetic radiation; and

(d) processing with a mathematical model spectral data only from said subset of said selected wavelength bands absorbed by said organic substance contained within said food product.